IN THE CLAIMS:

Please amend the claims as follows:

Cancel claims 31-39 and 98-108, without prejudice.

Please add the following new claims:

109.   (New) A method of delivering an active agent in vivo comprising administering to a subject a composition comprising a purified protein which specifically binds a gastro-intestinal tract receptor, which receptor is selected from the group consisting of HPT1 (SEQ ID NO:178), hPEPT1 (SEQ ID NO:176), D2H (SEQ ID NO:179), and hSI (SEQ ID NO:181), wherein the purified protein is bound to a material comprising an active agent, said active agent being of value in the treatment of a mammalian disease or disorder, and wherein the protein is selected from the group consisting of

(a)   a protein comprising an amino acid sequence selected from the group consisting of SEQ ID NOS:1-55 or a binding portion thereof;

(b)   a protein which is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: Xaa_1 Thr Xaa_2 Xaa_3 Ser Xaa_4 Xaa_5 Xaa_6 Asn Xaa_7 Arg (SEQ ID NO:253), where Xaa_1 is Ser or Thr; Xaa_2 is Arg or Lys; Xaa_3 is Lys or Arg; Xaa_4 is Ser or Leu; Xaa_5 is Arg, Ile, Val, or Ser; Xaa_6 is Ser, Tyr, Phe, or His; and Xaa_7 is Pro, His or Arg;

(c)   a protein which is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: Asp Xaa_1 Asp Xaa_2 Arg Arg Xaa_3 Xaa_4 (SEQ ID NO:254) where Xaa_1 is Ser, Ala, or Gly; Xaa_2 is Val or Gln; Xaa_3 is Pro, Gly, or Ser; and Xaa_4 is Trp or Tyr;

(d)   a protein which is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: Val Arg Ser Gly Cys Gly Xaa_1 Xaa_2 Ser Ser (SEQ ID NO:255), where Xaa_1 is Ala or Phe; and Xaa_2 is Arg or His;

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(e)   a protein which is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: NTRKSSRSNPR (SEQ ID NO:256);

(f)   a protein which is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: STKRSLIYNHR (SEQ ID NO:257);

(g)   a protein which is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: STGRKVFNRR (SEQ ID NO:258);

(h)   a protein which is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: TNAKHSSHNRR (SEQ ID NO:259);

(i)   a protein which is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: DSDVRRPW (SEQ ID NO:260);

(j)   a protein which is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: AADQRRGW (SEQ ID NO:261);

(k)   a protein which is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: DGRGGRSY (SEQ ID NO:262);

(l)   a protein which is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: RVRS (SEQ ID NO:263);

(m)   a protein which is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: SVRSGCGFRGSS (SEQ ID NO:264); and

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(n)   a protein which is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: SVRGGCGAHSS (SEQ ID NO:265).

110.   (New) The method of claim 109 wherein the protein comprises an amino acid sequence selected from the group consisting of SEQ ID NOS:1-55 or a binding portion thereof.

111.   (New) The method of claim 109 wherein the protein is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: Xaa_1 Thr Xaa_2 Xaa_3 Ser Xaa_4 Xaa_5 Xaa_6 Asn Xaa_7 Arg (SEQ ID NO:253), where Xaa_1 is Ser or Thr; Xaa_2 is Arg or Lys; Xaa_3 is Lys or Arg; Xaa_4 is Ser or Leu; Xaa_5 is Arg, Ile, Val, or Ser; Xaa_6 is Ser, Tyr, Phe, or His; and Xaa_7 is Pro, His or Arg.

112.   (New) The method of claim 109 wherein the protein is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: Asp Xaa_1 Asp Xaa_2 Arg Arg Xaa_3 Xaa_4 (SEQ ID NO:254) where Xaa_1 is Ser, Ala, or Gly; Xaa_2 is Val or Gln; Xaa_3 is Pro, Gly, or Ser; and Xaa_4 is Trp or Tyr.

113.   (New) The method of claim 109 wherein the protein is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: Val Arg Ser Gly Cys Gly Xaa_1 Xaa_2 Ser Ser (SEQ ID NO:255), where Xaa_1 is Ala or Phe; and Xaa_2 is Arg or His.

114.   (New) The method of claim 109 wherein the protein is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: NTRKSSRSNPR (SEQ ID NO:256) or STKRSLIYNHR (SEQ ID NO:257) or STGRKVFNRR (SEQ ID NO:258) or TNAKHSSHNRR (SEQ ID NO:259).

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115. (New) The method of claim 109 wherein the protein is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: DSDVRRPW (SEQ ID NO:260) or AADQRRGW (SEQ ID NO:261) or DGRGGRSY (SEQ ID NO:262).

116. (New) The method of claim 109 wherein the protein is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: RVRS (SEQ ID NO:263) or SVRSGCGFRGSS (SEQ ID NO:264) or SVRGGCGAHSS (SEQ ID NO:265).

117. (New) The method of claim 109 wherein the material is a particle containing the active agent.

118. (New) The method of claim 109 wherein the active agent is a drug.

119. (New) The method as in any one of claims 110-118 wherein the protein is not more than 40 amino acids in length.

120. (New) The method as in any one of claims 110-118 wherein the protein is not more than 30 amino acids in length.

121. (New) The method as in any one of claims 110-118 wherein the protein is not more than 20 amino acids in length.

122. (New) The method as in any one of claims 110-118 wherein said composition facilitates the transport of the active agent through human or animal gastro-intestinal tissue.

123. (New) The method as in any one of claims 110-118, in which the administering is oral.

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124.   (New) The method as in any one of claims 110-118, in which the active agent is a drug.

125.   (New) The method as in any one of claims 110-118, in which the subject is human.

126.   (New) The method of claim 124, in which the subject is human.

127.   (New) A method of delivering a drug to a subject comprising administering to the subject a composition comprising a purified protein which specifically binds a gastro-intestinal tract receptor, which receptor is selected from the group consisting of HPT1 (SEQ ID NO:178), hPEPT1 (SEQ ID NO:176), D2H (SEQ ID NO:179), and hSI (SEQ ID NO:181), wherein the purified protein is covalently bound to a particle containing a drug of value in the treatment of a mammalian disease or disorder, and wherein the protein is selected from the group consisting of

(a)   a protein comprising an amino acid sequence selected from the group consisting of SEQ ID NOS:1-55 or a binding portion thereof;

(b)   a protein which is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: Xaa_1 Thr Xaa_2 Xaa_3 Ser Xaa_4 Xaa_5 Xaa_6 Asn Xaa_7 Arg (SEQ ID NO:253), where Xaa_1 is Ser or Thr; Xaa_2 is Arg or Lys; Xaa_3 is Lys or Arg; Xaa_4 is Ser or Leu; Xaa_5 is Arg, Ile, Val, or Ser; Xaa_6 is Ser, Tyr, Phe, or His; and Xaa_7 is Pro, His or Arg;

(c)   a protein which is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: Asp Xaa_1 Asp Xaa_2 Arg Arg Xaa_3 Xaa_4 (SEQ ID NO:254) where Xaa_1 is Ser, Ala, or Gly; Xaa_2 is Val or Gln; Xaa_3 is Pro, Gly, or Ser; and Xaa_4 is Trp or Tyr;

(d)   a protein which is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: Val Arg Ser

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Gly Cys Gly Xaa₁ Xaa₂ Ser Ser (SEQ ID NO:255), where Xaa₁ is Ala or Phe; and Xaa₂ is Arg or His;

(e)   a protein which is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: NTRKSSRSNPR (SEQ ID NO:256);

(f)   a protein which is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: STKRSLIYNHR (SEQ ID NO:257);

(g)   a protein which is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: STGRKVFNRR (SEQ ID NO:258);

(h)   a protein which is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: TNAKHSSHNRR (SEQ ID NO:259);

(i)   a protein which is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: DSDVRRPW (SEQ ID NO:260);

(j)   a protein which is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: AADQRRGW (SEQ ID NO:261);

(k)   a protein which is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: DGRGGRSY (SEQ ID NO:262);

(l)   a protein which is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: RVRS (SEQ ID NO:263);

(m)   a protein which is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: SVRSGCGFRGSS (SEQ ID NO:264); and

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(n)   a protein which is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: SVRGGCGAHSS (SEQ ID NO:265).

128.   (New) The method of claim 127 wherein the protein comprises an amino acid sequence selected from the group consisting of SEQ ID NOS:1-55 or a binding portion thereof.

129.   (New) The method of claim 127 wherein the protein is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: Xaa_1 Thr Xaa_2 Xaa_3 Ser Xaa_4 Xaa_5 Xaa_6 Asn Xaa_7 Arg (SEQ ID NO:253), where Xaa_1 is Ser or Thr; Xaa_2 is Arg or Lys; Xaa_3 is Lys or Arg; Xaa_4 is Ser or Leu; Xaa_5 is Arg, Ile, Val, or Ser; Xaa_6 is Ser, Tyr, Phe, or His; and Xaa_7 is Pro, His or Arg.

130.   (New) The method of claim 127 wherein the protein is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: Asp Xaa_1 Asp Xaa_2 Arg Arg Xaa_3 Xaa_4 (SEQ ID NO:254) where Xaa_1 is Ser, Ala, or Gly; Xaa_2 is Val or Gln; Xaa_3 is Pro, Gly, or Ser; and Xaa_4 is Trp or Tyr.

131.   (New) The method of claim 127 wherein the protein is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: Val Arg Ser Gly Cys Gly Xaa_1 Xaa_2 Ser Ser (SEQ ID NO:255), where Xaa_1 is Ala or Phe; and Xaa_2 is Arg or His.

132.   (New) The method of claim 127 wherein the protein is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: NTRKSSRSNPR (SEQ ID NO:256) or STKRSLIYNHR (SEQ ID NO:257) or STGRKVFNRR (SEQ ID NO:258) or TNAKHSSHNRR (SEQ ID NO:259).

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133.   (New) The method of claim 127 wherein the protein is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: DSDVRRPW (SEQ ID NO:260) or AADQRRGW (SEQ ID NO:261) or DGRGGRSY (SEQ ID NO:262).

134.   (New) The method of claim 127 wherein the protein is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: RVRS (SEQ ID NO:263) or SVRSGCGFRGSS (SEQ ID NO:264) or SVRGGCGAHSS (SEQ ID NO:265).

135.   (New) The method as in any one of claims 128-134 wherein the protein is not more than 40 amino acids in length.

136.   (New) The method as in any one of claims 128-134 wherein the protein is not more than 30 amino acids in length.

137.   (New) The method as in any one of claims 128-134 wherein the protein is not more than 20 amino acids in length.

138.   (New) The method as in any one of claims 128-134 wherein said composition facilitates the transport of the drug through human or animal gastro-intestinal tissue.

139.   (New) The method as in any one of claims 128-134 in which the administering is oral.

140.   (New) The method as in any one of claims 128-134 in which the subject is a human.

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141.   (New) A method of delivering a drug to a subject comprising administering to the subject a composition comprising a purified protein which specifically binds a gastro-intestinal tract receptor, which receptor is selected from the group consisting of HPT1 (SEQ ID NO:178), hPEPT1 (SEQ ID NO:176), D2H (SEQ ID NO:179), and hSI (SEQ ID NO:181), wherein the purified protein is covalently bound to a drug of value in the treatment of a mammalian disease or disorder, and wherein the protein is selected from the group consisting of

(a)   a protein comprising an amino acid sequence selected from the group consisting of SEQ ID NOS:1-55 or a binding portion thereof;

(b)   a protein which is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: Xaa_1 Thr Xaa_2 Xaa_3 Ser Xaa_4 Xaa_5 Xaa_6 Asn Xaa_7 Arg (SEQ ID NO:253), where Xaa_1 is Ser or Thr; Xaa_2 is Arg or Lys; Xaa_3 is Lys or Arg; Xaa_4 is Ser or Leu; Xaa_5 is Arg, Ile, Val, or Ser; Xaa_6 is Ser, Tyr, Phe, or His; and Xaa_7 is Pro, His or Arg;

(c)   a protein which is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: Asp Xaa_1 Asp Xaa_2 Arg Arg Xaa_3 Xaa_4 (SEQ ID NO:254) where Xaa_1 is Ser, Ala, or Gly; Xaa_2 is Val or Gln; Xaa_3 is Pro, Gly, or Ser; and Xaa_4 is Trp or Tyr;

(d)   a protein which is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: Val Arg Ser Gly Cys Gly Xaa_1 Xaa_2 Ser Ser (SEQ ID NO:255), where Xaa_1 is Ala or Phe; and Xaa_2 is Arg or His;

(e)   a protein which is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: NTRKSSRSNPR (SEQ ID NO:256);

(f)   a protein which is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: STKRSLIYNHR (SEQ ID NO:257);

(g)   a protein which is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: STGRKVFNRR (SEQ ID NO:258);

(h)   a protein which is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: TNAKHSSHNRR (SEQ ID NO:259);

(i)   a protein which is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: DSDVRRPW (SEQ ID NO:260);

(j)   a protein which is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: AADQRRGW (SEQ ID NO:261);

(k)   a protein which is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: DGRGGRSY (SEQ ID NO:262);

(l)   a protein which is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: RVRS (SEQ ID NO:263);

(m)   a protein which is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: SVRSGCGFRGSS (SEQ ID NO:264); and

(n)   a protein which is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: SVRGGCGAHSS (SEQ ID NO:265).

142.   (New) The method of claim 142 wherein the protein comprises an amino acid sequence selected from the group consisting of SEQ ID NOS:1-55 or a binding portion thereof.

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143.   (New) The method of claim 142 wherein the protein is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: Xaa_1 Thr Xaa_2 Xaa_3 Ser Xaa_4 Xaa_5 Xaa_6 Asn Xaa_7 Arg (SEQ ID NO:253), where Xaa_1 is Ser or Thr; Xaa_2 is Arg or Lys; Xaa_3 is Lys or Arg; Xaa_4 is Ser or Leu; Xaa_5 is Arg, Ile, Val, or Ser; Xaa_6 is Ser, Tyr, Phe, or His; and Xaa_7 is Pro, His or Arg.

144.   (New) The method of claim 142 wherein the protein is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: Asp Xaa_1 Asp Xaa_2 Arg Arg Xaa_3 Xaa_4 (SEQ ID NO:254) where Xaa_1 is Ser, Ala, or Gly; Xaa_2 is Val or Gln; Xaa_3 is Pro, Gly, or Ser; and Xaa_4 is Trp or Tyr.

145.   (New) The method of claim 142 wherein the protein is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: Val Arg Ser Gly Cys Gly Xaa_1 Xaa_2 Ser Ser (SEQ ID NO:255), where Xaa_1 is Ala or Phe; and Xaa_2 is Arg or His.

146.   (New) The method of claim 142 wherein the protein is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: NTRKSSRSNPR (SEQ ID NO:256) or STKRSLIYNHR (SEQ ID NO:257) or STGRKVFNRR (SEQ ID NO:258) or TNAKHSSHNRR (SEQ ID NO:259).

147.   (New) The method of claim 142 wherein the protein is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid sequence of: DSDVRRPW (SEQ ID NO:260) or AADQRRGW (SEQ ID NO:261) or DGRGGRSY (SEQ ID NO:262).

148.   (New) The method of claim 142 wherein the protein is not more than 50 amino acids in length and includes, positioned anywhere along its sequence, the contiguous amino acid

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